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October 20, 2004

Paul Bennett
Kittitas County Public Works
411 North Ruby Street, Suite 1
Ellensburg, WA 98926

RE: Piping of Bull Canal Project

Dear Mr. Bennett:

The project described as piping of 800 lineal feet of Bull Canal to separate the Canal from Naneum Creek and sponsored by the Kittitas County Public Works and Bull Canal Company has been identified as a priority project for funding through the Water Conveyance Infrastructure grant program appropriated to the Department of Ecology by the legislature. These funds are being awarded based on the public benefits of the project. The Washington Department of Fish and Wildlife determined there are sufficient fish benefits to qualify the proposal for funding in the requested amount of $125,000.

If you accept the amount granted for this project, a detailed scope of work will need to be developed. Dave Burdick, the Water Resources Program grant coordinator, is the lead for this next step in the process. If you have any question please contact Dave at (360) 407-6094 or email *dbur461@ecy.wa.gov.*

Sincerely,

Joe Stohr, Manager
Water Resources Program

Enclosure

cc: Dave Burdick
Curt Hart
Joy Potter, Kittitas County Public Works
Carol Ready, Kittitas County Water Purveyors

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October 13, 2004

TO: Dave Burdick, Water Resources
Department of Ecology

FROM: Perry Harvester, Habitat Program, Water Team
Washington Department of Fish and Wildlife

SUBJECT: **Assessment of the salmonid benefits of the Conveyance and Infrastructure Improvement Project titled, *Piping 800 lineal feet of Bull Canal to separate the Canal from Naneum Creek*, Tributary to Wilson Creek and the Yakima River, The project is located in the Southwest 1/4 of Section 17, Township 17 North, Range19 East, Kittitas County, WRIA 39.**

Background

This project (sponsored by the Bull Canal Company and the Kittitas County Conservation District) is located on Naneum Creek that is part of the "Wilson-Naneum-Cherry Creek Complex". The "Wilson-Naneum-Cherry Creek Complex" is one of the largest sub-basins in the Kittitas Valley (approximately 408 square miles) and is collectively comprised of canals, laterals, siphons, spillways, irrigation return drains, and natural instream flow. Post irrigation development, Naneum, Coleman, Whiskey, and Mercer Creeks are routed through Wilson Creek. Naneum Creek currently enters Wilson Creek at approximately RM 1.8 and Wilson Creek enters the Yakima River at RM 147. Habitat condition in lower Naneum Creek is generally poor with excessive sedimentation, little habitat diversity and channel complexity, poor floodplain connectivity, and numerous fish passage barriers. Most of the stream reaches below the first three miles downstream of the forested reach have been straightened and dredged and the channel bifurcates into numerous irrigation delivery channels with a trapezoidal configuration.

Due to is relatively large size, good water quality, the production potential for summer steelhead and coho in upper Naneum Creek is considerable, as many miles of good rearing and spawning habitat are present within the forested reach above the uppermost irrigation diversions. Old catch records, some dating to the 1930's indicates the presence of bull trout in Coleman Creek (USFWS 2001 DRAFT). Bull trout presence is currently unknown. There is currently no anadromous fish access to upper Naneum Creek due to multiple check structures associated with irrigation diversions.

Water quality, including stream temperatures in the lower and middle reaches of the Creek, are likely limiting during summer months as a high proportion of the flow consists of runoff from surrounding irrigated agriculture and riparian vegetation is often sparse.

Priority Ranking

The Wilson-Naneum-Cherry Creek Complex, including lower and middle Naneum Creek received a "poor" ranking in the "Water Acquisition Program" prioritization matrix (which prioritized streams within the 16 Critical Sub-basins for restoring instream flows) due to several factors, including the assessment provided in the Limiting Factor Analysis (WSCC 2001). Riparian condition, substrate condition, floodplain connectivity, off-channel habitat condition, and fish passage conditions are all ranked as being "poor" within this stream. One of the primary reasons for the low ranking was that there has not been sufficient inventory work on passage or screening to justify reevaluation. However, there has been measurable progress in identifying passage and screening problems over the past year and a final report will soon be available by the Kittitas County Conservation District. Passage improvements have also been implemented throughout lower Wilson Creek as well.

The middle and lower reaches of Wilson and Naneum Creeks and most of their associated tributaries have been converted to irrigation delivery systems (YSS 2001 Draft). Many stream reaches have been rerouted, channelized, piped, or resemble high velocity trapezoidal ditches with poor habitat conditions. However, riparian vegetation, spawning substrate, and habitat parameters within the upper forested reaches of Naneum Creek are generally ranked as being "good" with some fine sediment concern associated with forest roads in close proximity to the stream.

Flow

A USGS gaging station was maintained for 20 years (1957-1978) on upper Naneum creek above the uppermost diversions. Stream flows averaged 57.1cfs for the period of record, or 0.82cfs/square mile for 69.2 square miles of the upper watershed. Low flows dropped to 10 cfs or less in most years. While flows in lower Naneum and Wilson Creeks are generally not limiting to salmonids due to supplemental flow from irrigation returns, the reach of stream between the upper KRD canal crossing upstream to the old gage station are likely to be too low for salmonid passage and rearing most years in late August through mid-October (little gage data exists in the lower reaches of Naneum Creek). USBOR gage data from the Charlton Road crossing area during 2001 and 2002 indicated that flows ranged between 4.5 and 9.4 cfs between the months of June and October.

Landowners in the vicinity of the stream reach between the John Wayne Trail and the old Vantage Highway indicate that flows are also very low or the stream occasionally dries up during the irrigation season. Another area where flows are limiting is that reach just above the KRD canal crossing as no return water supplements flow above that point and numerous diversions are present. While rearing habitat would be expected to be limited in areas where flow is limiting during the summer, flow is generally adequate when adult steelhead or coho would be expected to be migrating.

Project Description

It has long been recognized that fish access to and from the upper watershed is the most limiting factor to salmonids in this sub-basin. Despite recent efforts to provide passage, only partial access is provided at this project site at RM 2.0 and additional seasonal barriers are located at RM 4.3 and 6.0 (WSCC-2001). A complete barrier exists at RM 9.0 and an unknown number (perhaps dozens) of barriers exist above that point.

Bull Canal, which originates as a surface diversion from the Yakima River, currently bisects and enters Naneum Creek at the above-described location at about river mile two (2), immediately after passing through a culvert under the Number 6 Road. Naneum Creek flows south paralleling the east side of Number 6 Road for about ¼ mile. The Bull Canal flows from the west and enters Naneum Creek about 600 feet north of the bridge that passes under the Number 6 Road.

The Bull Canal water then co-mingles with Naneum Creek downstream for a few hundred feet, then is diverted from the creek at an unscreened, gravity diversion located just above the bridge where Naneum Creek passes to the west under Number 6 Road (Naneum Creek makes a 90 degree turn to the west just before passing under the bridge and the Bull Canal leaves Naneum Creek towards the south just off the 90 degree turn). The upstream bridge abutments are used as an irrigation diversion structure that is a barrier to fish passage. The co-mingling of these waters could lead to false attraction of salmonids into Naneum Creek that are destined for the upper Yakima River.

The project proposal involves piping the Bull Canal from the west side of the Number 6 Road, just prior to it's current entry location, south along the *west* side of Number 6 Road to a point near the current bridge over Naneum Creek. From this point the Bull Canal would pass under both the Number 6 Road and Naneum Creek, and return to the Bull Canal downstream from its current point of diversion from Naneum Creek. Thus, installation of 800 feet of PVC pipe paralleling and passing under the Number 6 Road and Naneum Creek will isolate Bull Canal from the creek. Additional instream flow will then be preserved in the creek.

Kittitas County Public Works will be replacing the bridge and widening their road concurrent with this project proposal, that will provide improved fish passage and greater flood capacity of the stream channel.

Fish Benefits (Passage and Screening)

Resident salmonids are currently entrained into the ditch via the unscreened diversion and onto agricultural croplands. The need for a fish screen at the point of diversion where the Bull Canal leaves Naneum Creek will now be avoided, as the two channels will be separated.

The Bull Canal Company originally sought water rights out of Naneum Creek and has been using water from the creek for many decades. They have recently dropped pursuit of irrigation water rights from the creek in the Yakima River Basin adjudication process since implementation of recent water conservation projects has reduced their need for additional conveyance water. Thus, installation of a closed pipe under the creek will isolate Bull Canal water from Naneum Creek and

will ensure that no water from the creek is co-mingled with, and diverted into, the ditch. Instream flow will then be preserved in the creek.

This project will benefit fish resources by:

- Eliminating the co-mingling of Bull Canal water with Naneum Creek water that could result in a false attraction problem to anadromous salmonids migrating to the upper Yakima River.
- Avoiding the need to fund and install a fish screen at the point of diversion of the Bull Canal from Naneum Creek, and prevent entrainment of fish into the Bull Canal.
- Increasing instream flow within Naneum Creek.
- Improving fish passage conditions in Naneum Creek through removal of the check dam structure associated with the Bull Canal diversion.

This project also fits well with the accepted protocol of incrementally linking passage and screening improvements by starting at the mouth of the stream and progressing upstream to provide additional fish access.

Other Restoration Efforts

Other salmonid restoration efforts are now occurring within this sub-basin and additional projects are planned. As indicated, a complete inventory of passage barriers and unscreened diversions by the Yakima Tributary Access and Habitat Program (YTAHP) is now largely complete. Riparian fencing, revegetation, fish passage, Centennial Clean Water Act, and other water conservation programs and projects have been implemented by the Yakama Indian Nation, DOE, WDFW, BPA, DNR and KCCD within this sub-basin. It is expected that considerable progress will occur in passage and screening efforts over the next decade.

The KCCD is currently working with irrigators who volunteered to begin the process of screening and providing fish passage on over 35 diversions on Naneum, Coleman, Cooke, Parke, Caribou and Badger Creeks (1999,KCCD). Work includes both instream and on-farm improvements to meet NMFS screening requirements, as well as improving delivery systems to achieve water use efficiencies.

Conclusion

This project proposal complements the other restoration efforts in the Bull Canal, Naneum Creek, and Wilson Creek, to ultimately provide fish access to upper reaches of the Naneum Creek where many miles of suitable spawning and rearing habitat exists.

Due to the number of upstream barriers and unscreened diversions other enhancement programs have been hesitant to place a high priority on restoration projects in the upper reaches of the Naneum-Wilson Creek watershed. This remains prudent as providing access to upstream areas where unscreened diversions exist would place anadromous fish at risk. However, this project proposal is focused on the lowermost barrier and unscreened diversion in the watershed and it

would improve anadromous juvenile salmonid access to rearing habitat located in lower reaches of the creek. The short term benefits of the project would be to provide access to additional rearing area for juvenile salmonids, and prevent resident and anadromous salmonids from becoming entrained into the Bull Canal. Salmonid access to the upper reaches of Naneum Creek, while desirable, will not be possible until other unscreened diversions and fish passage barriers upstream are resolved.

Despite the initial low ranking of the lower reaches of the Naneum Creek watershed, this project proposal is located within a stream reach that will result in measurable public resource benefits in both the short and long term and we recommend that it be funded.

Cc: Water Team
Richard Visser – WDFW, Habitat Program
Steve Kropp - WDFW, Habitat Program
Theodore Clausing - WDFW, Habitat Program
Scott Nicolai – Yakama Indian Nation
Hank Frasier – Yakama Indian Nation

Literature Cited

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